



PowerCAD Simulation Tool



The Vishay PowerCAD Simulation tool is a free on-line tool that gives engineers a fast and convenient way to test and optimize DC/DC circuits built with Vishay Siliconix regulator ICs.

Using an intuitive interface, Vishay's PowerCAD Simulation tool supports both experienced analog and power designers as well as junior or digital designers with less experience in high-power, high-frequency voltage regulator design.

RESOURCES

- The Vishay PowerCAD Simulation tool: <http://vishay.transim.com/>
- Demo Board Documentation of SiC403A/B, SiC402A/B, and SiC401A/B Synchronous Buck Regulators: www.vishay.com/doc?62923
- For technical questions contact powerictechsupport@vishay.com





DESIGN TOOL

Vishay PowerCAD Simulation Tool

Power ICs - Optimize DC/DC Circuit Design



Based on the required operating conditions, the engineer can select the appropriate regulator from the Vishay product offering and generate a full circuit schematic for the application.

Click on "New" and name your design.

Enter your parameters to filter the parts table, then select the part number to start your design.

Part Number	Data Sheet	V_{in} (V)	V_{out} (V)	Max. DC Load Current (A)	Features	Protections	Switching Frequency (kHz)	Switches with Frequency (kHz)	Package
SiC401		5	0.5	0.5	95	Programmable LDO, Soft Start (AU), PGOOD, Power-Save Mode	DCP (TP), LVP, OVP	Adjustable up to 1MHz	MLP 32 Lead 27mm x 27mm x 0.75mm
SiC402		5	2.0	0.5	50	Programmable LDO, Soft Start (AU), PGOOD, Power-Save Mode	DCP (TP), LVP, OVP	Adjustable up to 1MHz	MLP 32 Lead 27mm x 27mm x 0.75mm
SiC403		5	2.0	0.5	9	Programmable LDO, Soft Start (AU), PGOOD, Power-Save Mode	DCP (TP), LVP, OVP	Adjustable up to 1MHz	MLP 32 Lead 27mm x 27mm x 0.75mm
SiC403A		2	2.0	0.5	0.3	Programmable LDO, Soft Start (AU), PGOOD, Power-Save Mode	DCP (TP), LVP, OVP	Adjustable up to 1MHz	MLP 32 Lead 27mm x 27mm x 0.75mm
SiC403B		5	0.0	0	0.0	Programmable LDO, Soft Start (AU), PGOOD, Power-Save Mode	DCP (TP), LVP, OVP	Adjustable up to 1MHz	MLP 32 Lead 27mm x 27mm x 0.75mm

Modify optional parameters based on your specifications.

Parameter	Value	Unit
Vin	5.5	V
Switching Frequency	300	KHz
Iout	2	A
Iin	18	A
Operate Mode	Forced-DCM	
Drop Footpad	<input checked="" type="checkbox"/> Internal LDO <input type="checkbox"/> External Res	
External Bias Voltage	5	V
VGSD	5	V
Virtual ESR Network	<input checked="" type="checkbox"/> No <input type="checkbox"/> Yes	
Vout	0	V

Create Design

Modify optional parameters based on your specifications.

Create Design





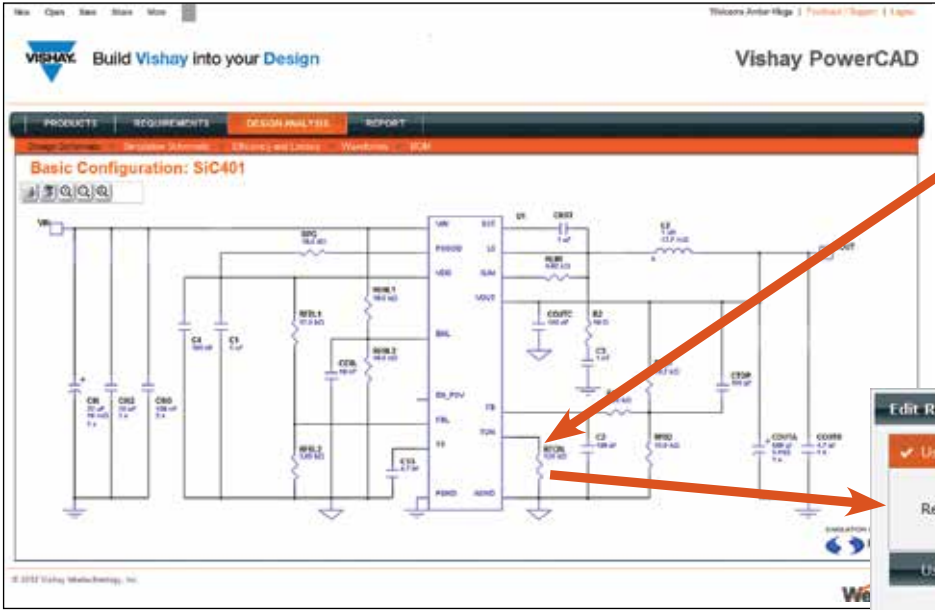
DESIGN TOOL

Vishay PowerCAD Simulation Tool

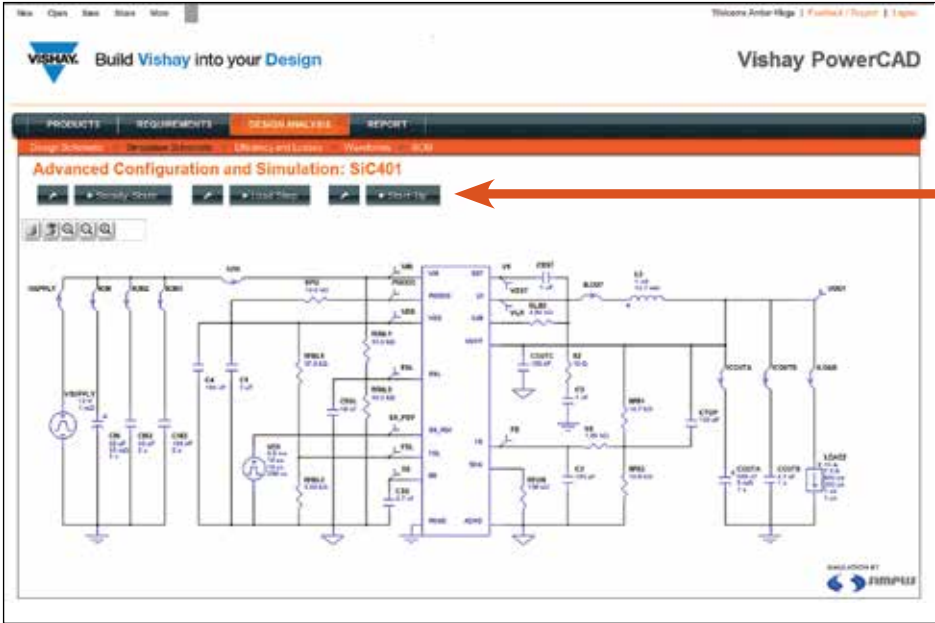
Power ICs - Optimize DC/DC Circuit Design



The schematic can then be edited as required for more advanced users or for performance comparison purposes.



Click on elements within the schematic to customize.



Once the basic circuit is created, the designer can perform DC, transient, and start-up simulations with visibility of all the circuit node waveforms.



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Power ICs - Optimize DC/DC Circuit Design



An efficiency analysis and optimization of the circuit with detailed power loss analysis may also be performed.



Ref	Qty	Find	Part Number	Manufacturer	Description
U1	1		SC48T	Vishay	Custom
C1	1		ZCGR1115K200 of	Vishay	Cap Ceramic 1uF 50VDC ATR 10% RDL 5.09mm Bulk
C2	1		CDR03B181RUF of	Vishay	Cap Ceramic 180pF 50VDC BP 7% STD 0805 2.01mm Bulk
C3	1		1010C010J602R of	Vishay	Cap Ceramic 0.10uF 50VDC C0G 5% RES 2.54mm Bulk
C4	1		0028-SK70K02 of	Vishay	Cap Ceramic 0.1uF 25VDC BX 10% SMD 3603

Generate a bill of materials (BOM).

You can review your design through the "More" tab.

Create a contact list, share your results with your own contacts or with Vishay FAEs for additional technical support, review your activity log, and browse by design.